WESTBAY® RETROFIT WELL SUMMARY

Location ID: PL-8

Field Representatives: Canavan, Giles, Hunnicutt-Mack, McClure, Pearson, Rivera

Purpose of Well: To monitor plume-front contamination and the effectiveness of the water treatment system for plume stabilization.

Date Started: 3/22/99 **Date Completed:** 9/29/99

Northing: 224063.61 **Easting:** 399235.94

Brass Cap: 4469.63' **Outer Casing:** 4470.67' **Inner Casing:** 4470.85'

Drilling Method: Mud Rotary

Drilling Contractor: Stewart Brothers Drilling Company **Driller:** Juan Aguilar

Total Depth Borehole: 1020' **Diameter Borehole:** 12.25" to 122'; Reamed to 17.5"; 12.25" to TD.

Total Depth Surface Casing: 122' **Diameter Surface Casing:** 14" OD

Total Depth Conv. Well Casing: 1000' **Diameter Conv. Well Casing:** 4.5" OD

Total Depth 1.5" OD Westbay® Casing: 990'

Water First Detected: Not detected during drilling **Water Level Open Borehole:** 375' (from geophysical log)

Water Level Conv. Cased Borehole (post-development SS): 404.51' **Estimated Water Use** (pre- development: 73,600 gallons

Sampling Zones

Screened Zone	Sand Pack	Westbay® Zone (packer to packer)	Meas. Port Depth
448.18' to 458.22'	441' to 464'	445' to 465'	455'
598.53' to 608.56'	590' to 613'	595' to 615'	605'
773.95' to 783.99'	771' to 789'	770' to 790'	780'
959.51' to 969.57'	951' to 974'	955' to 975'	965'

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Conventional Well Casing Used

Diameter: 4.5" OD **Stainless Steel Type:** 304

Schedule 5

5-foot: 0 = 0 ft

10-foot: 0 = 0 ft

20-foot: 0 = 0 ft

Total Sch 5 Footage = 0 ft

Total Footage of Blank Risers: 960 ft

Schedule 10

5-foot: 2 = 10 ft

10-foot: 3 = 30 ft

20-foot: 46 = 920 ft

Total Sch 10 Footage = 960 ft

Stick-Up: 3.4 ft originally. Cut to 1.15 ft 8/99. Final stick-up (from brass cap) = 1.04 ft

Screen Used

Diameter: 4.5" OD **Slot Size:** 0.020" **Stainless Steel Type:** 304

400-600-ft Depth Rating

5-foot: 0 = 0 ft

10-foot: 1 = 10 ft

20-foot: 0 = 0 ft

600-1000-ft Depth Rating

5-foot: 0 = 0 ft

10-foot: 3 = 30 ft

20-foot: 0 = 0 ft

Total Footage of Screen: 40 ft

Annular Materials

Based on field notes and drill report (approximate totals only).

Sand, grade 10/20

100-lb. Bags: 0

50-lb. Bags : 0

50-lb. Buckets: 989

50-lb Bags Benseal: 97

94-lb. Bags Cement: 100

Sand, grade 30/70

50-lb. Bags: 37

100-lb. Buckets: 0

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Location ID: PL-8

Westbay® Casing Used:

10-foot:	87	=	870	ft
5-foot:	14	=	70	ft
2-foot:	1	=	2	ft
Packer:	10	=	50	ft

Total Footage: 992 ft

Regular Couplings: 97

Well Depth: 990 ft

Pumping Ports: 4

Stick-Up: 2 ft joint; 1.85 ft (0.7 ft above stainless steel 9/99). Final stick-up (from brass cap) = 1.22 ft

Measurement Ports: 10

End Caps: 1

Magnetic Collars: 4

Pertinent Field Notes

For more detail, refer to Field Notebook #s TDP 392/RFI/CMS (pages 10-35); Development #1 (pages 6-16; 18-38; 64; 69-70); Westbay® Installation (pages 71-76).

3/22/99- Mobilized to site, rigged up and mixed mud. Spud borehole. Drilled mud rotary 12.25" pilot borehole to 112'-L. Hunnicutt.

3/23/99- Drilled initial pilot borehole 112'-122'. Reamed borehole to 17.5" from 0'-122' below ground surface. Installed 14" outside diameter (OD) surface casing to 122' and grouted to surface-L. Hunnicutt.

3/24/99- Completed cementing surface casing (Topped up). Drilled 12.25" borehole from 123'-243'-
M. Rivera.

3/25/99- Drilled 243'-305'. Rotary table inoperable with a bad bearing-
M. McClure.

3/29/99- Repaired rotary table. Drilled 305'-459' (from drill report). Borehole deviation was 0.1° from the hole origin-M. Rivera.

3/30/99- Drilled 459'-645'. Borehole deviation was ½° from the hole origin-
M. Rivera.

3/31/99- Drilled 645'-790'. Borehole deviation was 1° from the hole origin-
M. Rivera.

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Pertinent Field Notes Cont.

4/1/99-	Drilled 790'-865'. Drilling shut down due to high winds-J. Pearson and M. McClure.
4/2/99-	Drilled 865'-936'. Drilling shut down due to high winds- L. Hunnicutt-Mack.
4/6/99-	Drilled 936'-1020' (Total Depth). Borehole deviation was ¾° from hole origin-M. Rivera.
4/7/99-	Geophysical logging was completed by Southwest Geophysical Services, Inc. Tripped in tremie pipe-M. Rivera.
4/8/99-	Installed 4.5" OD stainless steel casing to 1000' with 3.38' stick up-L. Hunnicutt-Mack.
4/9/99-	Installed annular materials from 1017' (TD with slough) to 942' past the bottom screen. Shut down at 1600 due to high winds-J. Pearson.
4/10/99-	Mayco pump broken until 1200. Installed annular materials from 942'-714' (between bottom and third screen)-M. McClure.
4/11/99-	Installed annular materials from 714'-440' (within the screen #1 or top screen)-M. McClure.
4/12/99-	Installed annular materials from 440'-surface (200' of grout?)-M. McClure.
NOTE-	Prior to beginning development at PL-8: developed (bailed, swabbed, jetted, and pumped) ST-7; completed development (bailed, swabbed, and pumped) at BLM-39 and (pumped) at BLM-36; bailed and swabbed BLM-38; swabbed and pumped JP-3; and installed Westbay® casing at WW-2 and BLM-36.
6/3/99-	
6/4/99-	Bailed well. 308 gallons removed. Water was black with a sulfur odor-M. Canavan and J. Pearson.
6/5/99-	
6/9/99-	Swabbed well. 4,175 gallons removed from bottom screen. Water changed from black and oily to clear to slightly cloudy; 6,330 gallons removed from screen #3. Water initially cloudy green and cleared to very light gray. Turbidity was 36.8 NTU; 700 gallons from screen #2. Water was greenish brown to gray and cleared. Still gray. Turbidity was 13.9 NTU; 25 gallons removed from screen #1 (top). Water was brown to rust colored-M. Canavan, M. McClure, J. Pearson, and M. Rivera.
6/10/99, 6/15/99, 6/21/99-	Jetted well. Unchlorinated Well J water was used to jet each screen twice (6,400 gallons; a total of 25,600 gallons was jetted into the well)-M. Canavan and J. Pearson.

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Pertinent Field Notes Cont.

6/16/99-	
7/9/99-	Pumped well. 9,132 gallons removed from screen #1 (top). Turbidity was between 0.76 and 1.18 NTU; 8,632 gallons removed from screen #2. Turbidity was 0.92 to 1.25 NTU; 9,078 gallons from screen #3. Turbidity was 1.8 NTU; 9,559 gallons from screen #4. Turbidity was 1.5 NTU-M. Canavan, G. Giles, L. Hunnicutt-Mack, M. McClure, and J. Pearson. Development complete. Waiting on camera log to install Westbay® casing.
8/6/99-	Camera logged well. There was approximately 27' of sand in the sump (camera log showed sediment at 973')-J. Pearson.
8/12/99-	Bailed well. Removed 15' of sand from sump. Sump is clear to 988'-J. Pearson.
8/24/99-	Camera logged again. Water is cloudy and will require additional development.
NOTE:	From 8/25/99-9/7/99, all development summaries were taken from the development sheets. No other details were available.
8/25/99-	Pumped 4,405 gallons from screen #4-M. Canavan.
8/26/99-	Pumped 4,558 gallons from screen #3-M. Canavan.
8/27/99-	Pumped 5,374 gallons from screen #2-M. Canavan.
NOTE-	Stewart Brothers Drilling Co. personnel were not on site between 8/27/99 and 9/7/99.
9/7/99-	
9/8/99-	Pumped 4,213 gallons from the top screen. Turbidity was 1.56 NTU. Development complete-G. Giles.
9/14/99-	Camera logged PL-8 again. Well water was clear and ready for Westbay® casing installation.
9/20/99-	Moved materials from BLM-37 to PL-8 and set up site and Westbay® MP 38 1.5" OD PVC casing in preparation for casing installation-G. Giles and M. Rivera.
9/21/99-	Completed set up for Westbay® casing installation. Stainless steel casing sounded at 996'. Installed Westbay® casing from 990'-440'-G. Giles, L. Hunnicutt-Mack, M. McClure, M. Rivera, and D. Mercer from Westbay®, Inc.
9/22/99-	Completed Westbay® casing installation from 440'-surface. Completed casing integrity (leak) test. Casing did not leak. Set up for packer inflation and inflated packer number one-M. McClure and D. Mercer from Westbay®, Inc.
9/23/99-	Inflated packer numbers two, three, five, and six (Packer number four was missed)-J. Pearson and M. Rivera.

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Pertinent Field Notes Cont.

9/24/99- Inflated packer numbers seven and eight. Broke down equipment for weekend-L. Hunnicutt-Mack and J. Pearson.

9/27/99- Inflated packer number four. The pressure relief valve (set to 1000 psi) was leaking-L. Hunnicutt-Mack and J. Pearson.

9/28/99- Adjusted pressure relief valve-M. McClure.

9/29/99- Inflated packer numbers nine and ten (with Pressure Control Unit or PCU number two). Line valve in PCU number three was malfunctioning. Pump pressure regulator in PCU number two was malfunctioning. All PCUs are malfunctioning. Will try and exchange parts to obtain a working PCU to finish inflating packers at BLM-37-L. Hunnicutt-Mack and M. McClure.

Installation complete. Turned well over to Technicians for Westbay® development.